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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/881,554	06/14/2001	Charles Tyler Eytcheson	DP-304198	6825

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EXAMINER	
ERDEM, FAZLI	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/881,554	EYTCHESON, CHARLES TYLER	
	Examiner	Art Unit	
	Fazli Erdem	2826	

-- The MAILING DATE of this communication appears on the cov r sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5, 7-17, 19-25, 27, 29-37, 39 and 40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-5,7-9,11-17,19-25,27,29,31-37,39 and 40* is/are allowed.

6)☒ Claim(s) *10 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-5, 7-9, 11-17, 19-25, 27, 29, 31-37, 39 and 40 allowed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powers et al. (4,529,836) in view of Kwitkowski et al. (5,136,122) in view of Bowman et al. (6,083,772) further in view of Tamarkin (5,903,439) further in view of IBM Technical Disclosure Bulletin NN 600469.

Regarding Claim 10, Powers et al. disclose a stress absorption matrix where where an apparatus for interfacing materials and absorbing disparate thermal expansions that utilizes a woven wire mesh to support a predetermined thickness of a first soft solder which absorbs expansions, and utilizes a second soft solder having a lower melting point than the first to coat the surfaces of the wire mesh/first soft solder combination so that the materials can be bonded together. Powers et al. fail to disclose the connection and electrical circuitry bonding structures in the required manner. However, Kwitkowski et al. disclose a braided fiber omega connector where an improved omega connector for electrically coupling components of a multi-component electronic assembly comprises a first and second flat end sections each formed on a nonporous

copper plated adapted for solder bonding to components, and an intermediate loop section formed of interwoven copper fibers extending between the end sections to provide a continuous electrically conductive network therebetween. The fibers in the loop section carry a solder nonwettable coating to avoid interference with bonding operations to attach the end section to the components. The fibrous loop section exhibits enhanced flexibility to reduce stresses attributed to shifting of the components during operations and thereby extends the useful life of the assembly. Furthermore, Bowman et al. disclose a method of mounting a power semiconductor die on a substrate, where the die has a first power terminal on a first surface thereof and a second power terminal on an opposing second surface thereof. The method includes the steps of forming an electrically-conductive, mechanical bond between the first surface and a first location on the substrate, the mechanical bond electrically coupling the first power terminal to the substrate and soldering an elongated electrically conductive strap to the second surface and a second location on the substrate. Powers et al., Kwitkowski et al. and Bowman et al. fail to disclose the solder infiltrated mesh connection structure. However, Tamarkin discloses a mezzanine connector assembly where a epoxy infiltrated mesh connection structure is disclosed. IBM Technical Disclosure Bulletin NN600469 disclose a semiconductor structure . disclose a connection structure where the required solder/mesh structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required solder infiltrated mesh connection structure in in Powers et al., Kwitkowski et al., and Bowman et al. combination as taught by Tamarkin and IBM TDB NN600469, because such structure would provide a thermally and physically better connection structure for the circuit assembly components.

3. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable Powers et al. (4,529,836) in view of Bowman et al. (6,083,772) further in view of Sanborn et al. (5,221,399) further in view of IBM TDB NN600469.

Regarding Claims 30, Powers et al. disclose a stress absorption matrix where where an apparatus for interfacing materials and absorbing disparate thermal expansions that utilizes a woven wire mesh to support a predetermined thickness of a first soft solder which absorbs expansions, and utilizes a second soft solder having a lower melting point than the first to coat the surfaces of the wire mesh/first soft solder combination so that the materials can be bonded together. Powers et al. fail to disclose the method of doing required electrical circuitryt structure. However, Bowman et al. disclose a method of mounting a power semiconductor die on a substrate, where the die has a first power terminal on a first surface thereof and a second power terminal on an opposing second surface thereof. The method includes the steps of forming an electrically-conductive, mechanical bond between the first surface and a first location on the substrate, the mechanical bond electrically coupling the first power terminal to the substrate and soldering an elongated electrically conductive strap to the second surface and a second location on the substrate.

Powers et al., and Bowman et al. fail to disclose the method of using solder infiltrated mesh connection structure. However, Sanborn et al. disclose a joining of printed wiring board to aluminum stiffener using adhesive film, electrically insulative mesh structure that cures at room temperature the method of using epoxy infiltrated mesh connection structure is disclosed. IBM

TDB NN600469 discloses a semiconductor structure where the required solder/mesh structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the method of using required solder infiltrated mesh connection structure in in Powers et al., and Bowman et al. combination as taught by Sanborn et al. and IBM TDB NN600469 combination, because such structure would provide a thermally and physically better connection structure for the circuit assembly components.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

FE
May 2, 2004

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800